

REMARKS

In the June 9, 2003 Office Action, the Examiner noted that claims 1-4 and 13 were pending in the application and were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 6,396,954 to Kondo in view of U.S. Patent 6,064,959 to Young et al. (References A and D, respectively). No explanation was provided why the indication of allowance in the December 19, 2002 Office Action was withdrawn or why Kondo and Young et al. were not cited in the December 19, 2002 Office Action. Claim 4 has been cancelled and claim 15 has been added. Thus, claims 1-3, 13 and 15 remain in the case. The Examiner's rejections are traversed below.

The Invention

The present invention is directed to processing sensor data in which the sensor data is stored in data groups with a natural language word attached to each data group. As sensor data is received, it is compared with the previously stored data groups to try to find a data group that is similar. If a match is found, the natural language word attached to the similar data group is output, visibly or audibly. If no match is found, a user is prompted to supply an appropriate word to be attached to the new group, using a verb for data representing dynamic conditions and a noun for data representing a static condition.

An example is provided in the application for mobile robot 30 illustrated in Fig. 6 and the flowchart illustrated in Fig. 12. When the robot 30 reaches the blind alley 37, the data obtained may be assigned a name, such as "blind alley" or simply "deadlock". If the robot 30 subsequently reaches the end of corridor 33 in the lower left corner of Fig. 6, similar data will be obtained S51 and the word(s) assigned to the data group obtained in blind alley 37 will be output S53.

The Prior Art

U.S. Patent 6,396,954 to Kondo

The Kondo patent is directed to a speech recognition system, like that illustrated in Fig. 2 or 6. Inputs are received from two microphones 11, 13, a CCD camera 12 and a sensor 14. "The CCD camera 12 is located to picture the mouth of the user" (column 4, lines 34-35). Furthermore, the output of sensor 14 is used to determine "the level (or amplitude) of noise generated by the vibration of the vehicle and the level of range sound" (column 5, lines 16-17),

i.e., background noise. Thus, all of the inputs received by classification data construction unit 24 are used to identify words spoken by a user (see, e.g., column 6, lines 37-45).

U.S. Patent 6,064,959 to Young et al.

The Young et al. patent is directed to error correction in speech recognition. However, the cited portion of Young et al. discloses supplementing an active vocabulary when a word is not recognized by adding a word obtained from a backup dictionary (see column 20, lines 18-21).

Rejections under 35 U.S.C. § 103

In item 4 on pages 2-3 of the Office Action, claims 1-4 and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kondo in view of Young et al. As noted above, both Kondo and Young et al. are directed to voice recognition, while the present invention is directed to identifying a situation detected by sensors and using a natural language word to describe the situation to a user. While a word is output in both cases, the inputs are significantly different. In the case of a voice recognitions system, like those taught by Kondo and Young et al., a word is input using a microphone and the task of the system is to recognize that word, so that it can be processed as text.

To clarify the differences between a method according to the present invention and voice recognition, claims 1 and 13 have been amended to recite that the word attached to the data groups is "representing a characteristic of a corresponding data group" (e.g., claim 1, lines 3-4) to which the word is attached. It is submitted that neither Kondo nor Young et al. teach or suggest storing a word that represents "a characteristic of a corresponding data group", but rather producing a textual representation of a word spoken by the user. Therefore, it is submitted that claims 1 and 13 patentably distinguish over Kondo in view of Young et al.

Claim 2 has been amended to recite the type of word used to represent the characteristic of the data as described on pages 49 and 50 of the application. Since both Kondo and Young et al. are directed to identifying the word that was spoken, neither teach or suggest anything regarding using "a natural language noun when the group has a static characteristic and a natural language verb when the group has a dynamic characteristic" (claim 2, lines 9-10). Therefore, it is submitted that claim 2 and claim 3 which depends therefrom patentably distinguish over Kondo in view of Young et al.

New Claim 15

Claim 15 has been added to recite a "method for processing non-language data obtained from at least one sensor" (claim 15, lines 1-2) to distinguish the method from a voice recognition method like that taught by Kondo and Young et al. In addition, like claims 1 and 13, claim 15 recites "storing data groups, each identified by a natural language word representing a characteristic thereof" (claim 15, lines 3-4). Therefore, it is submitted that claim 15 patentably distinguishes over Kondo in view of Young et al. for the reasons discussed above with respect to claims 1 and 13.

Summary

It is submitted that the references cited by the Examiner, taken individually or in combination, do not teach or suggest the features of the present claimed invention. Thus, it is submitted that claims 1-3, 13 and 15 are in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: 9/9/03

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
on September 9, 2003
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Date September 9, 2003